

CURRENT MEASUREMENT PROBES

MR SERIES AC/DC CURRENT PROBES

MODELS MR417 / 527

Hall Effect AC/DC current probes for Oscilloscopes and other instruments with waveform displays

SPECIFICATIONS

MODEL	MR417	MR527
ELECTRICAL		
Current Range	0.5 to 40A _{AC} , 60A _{DC} 0.5 to 400A _{AC} , 600A _{DC}	0.5 to 100A _{AC} , 150A _{DC} 0.5 to 1000A _{AC} , 1400A _{DC}
Output Signal	10mV/A, 1mV/A	
Frequency Range	DC to 30kHz (-3dB) (depending of current value)	
Phase Shift At 50/60Hz	≤2°@ 40A ≤1.5° @ 400A	≤2.2°@ 100A ≤1.5° @ 1000A
Load Impedance	>1MΩ and ≤100pF	
Overload	3000A _{DC} or 1000A _{AC} continuous for < 1kHz	
Zero Adjust	Automatic on both ranges	
Power Source	9V alkaline battery (NEDA 1060A, 6LR61) or 5V DC Micro-USB type B	
Battery Life	50H typical	
Low Battery Indication	Green LED blinking	
Overload Indication	Red LED on when measurement > than selected range	
Output Termination	6.5 ft (2m) coaxial cable with insulated BNC terminal	
MECHANICAL		
Maximum Conductor Size	Cables: (1) 0.18" (30mm) or (2) .94" (24mm) Bus Bar: (1) 1.97 x 0.39" (50 x 10mm) or (2) 1.23 x 0.39" (31.5 x 10mm) or (3) 0.98 x 0.31" (25 x 8mm)	Cables: (1) 1.5" (39mm) or (2) 1" (25.4mm) Bus Bar: (1) 1.97 x 0.49" (50 x 12.5mm) or (2) 0.98 x 0.2" (25 x 5mm); (1) 1.24 x 0.30" (31.5 x 10mm) or (3) 0.98 x 0.31" (25 x 8mm)
Dimensions (H x W x D)	8.82 x 3.82 x 1.73" (224 x 97 x 44mm)	9.31 x 3.82 x 1.73" (236.5 x 97 x 44mm)
Weight (with Battery)	0.98lbs (440g)	1.15lbs (520g)
ENVIRONMENTAL		
Operating Temperature	14° to +131°F (-10 to +55°C)	
Storage Temperature	-40° to +176°F (-40 to +80°C)	
Relative Humidity	Up to 85% @ 35°C	
SAFETY		
Ingress Protection	IP 40	
EMC	EN 61326-1	
Safety Rating	IEC 61010-1, EN 61010-2-32, Pollution Degree 2, 600V CAT III	



MR417

MR527



FEATURES

- The jaw shape enables users to clamp on to cables or small bus bars
- Powered by battery or standard external 5V power source via micro-USB connector
- Measures up to 1000A_{AC} and 1400A_{DC} (model dependent)
- Equipped with a Zero DC reset function
- Auto Power Off enable/disable function
- LED overload and low battery indicators
- Millivolt output compatible with most equipment and instruments
- Equipped with a coaxial lead and isolated BNC connectors for direct connection to an oscilloscope
- Battery life up to 50 hours
- Safety rating 600V CATIII



BNC Connector

CATALOG NO.	DESCRIPTION
1200.84	AC/DC Current Probe Model MR417 (40A _{AC} , 60A _{DC} , 10mV/A & 400A _{AC} , 600A _{DC} , 1mV/A, BNC Output) Replaces MR461
1200.85	AC/DC Current Probe Model MR527 (100A _{AC} , 150A _{DC} , 10mV/A & 1000A _{AC} , 1400A _{DC} , 1mV/A, BNC Output) Replaces MR561



CURRENT MEASUREMENT PROBES

GENERAL PURPOSE PROBES SELECTION CHART

Series	Model	Ratio	Measurement Range		Output Signal		Phase Shift**	Maximum Conductor Size		Output Connection	Catalog No.
			AC	DC	Current	Voltage		Ø Cable	Bus Bar		
	MN01	1000:1	2 to 150A	–	1mA/A*	–	N/A	0.39" (10mm)	N/A	Leads	2129.17
	MN02	1000:1	50mA to 100A 50mA to 90A	–		–	N/A	0.39" (10mm)	N/A	Leads	2129.20
	MN03	–	2 to 100A	–		1mV/A	N/A	0.39" (10mm)	N/A	Leads	2129.18
	MN05	–	5mA to 10A 1 to 100A	–		1mV/A 1mV/A	N/A	0.39" (10mm)	N/A	Leads	2129.19
	MN09	–	1 to 150A	–		100mVdc/Aac	N/A	0.39" (10mm)	N/A	Leads	2129.21
	MN103	–	1mA to 10A 1 to 100A	–		1mV/A 1mV/A	N/A	0.47" (12mm)	N/A	Leads	1031.02
	MN114	–	1mA to 10A	–		100mV/A	<8°	0.47" (12mm)	N/A	Leads	2110.71
	MN185	1000:1	50mA to 120A	–	1mA/A	–	<3.5°	0.47" (12mm)	N/A	Jacks	100.185
	MN255	–	0.1 to 24A 0.1 to 240A	–		100mV/A 10mV/A	<2.5°	0.78" (19.8mm)	N/A	Leads	2115.81
	MN291	–	0.5 to 240A	–		100mVdc/Aac	N/A	0.78" (19.8mm)	N/A	Leads	2115.84
	MN307	–	10mA to 12A	–		100mV/A	<2.5°	0.78" (19.8mm)	N/A	Leads	2116.23
	MN312	1000:1	0.1 to 200A	–	1mA/A*	–	<2.5°	0.78" (19.8mm)	N/A	Jacks	2116.24
	MN352	–	0.1 to 150A	–		10mV/A	<2.5°	0.78" (19.8mm)	N/A	Jacks	2116.26
	MN353	–		–		10mV/A	<2.5°	0.78" (19.8mm)	N/A	Leads	2116.27
	MN375	–	0.1 to 10A	–		100mV/A	<1.5°	0.78" (19.8mm)	N/A	Leads	2115.41
	MN379	–	5mA to 6A 0.1 to 120A	–		200mV/A 10mV/A		0.78" (19.8mm)	N/A	Leads	2153.01
	SL206	–	10mA to 1.5A 50mA to 60A	10mA to 2A 50mA to 80A	–	1mV/mAac/dc 10mV/Aac/dc	<1°	0.46" (11.8mm)	N/A	Leads	1201.45
	MD301	1000:1	2 to 500A	–		1mVdc/Aac	N/A	1.18" (30mm) 2 x 500kc-mil	2.48 x 0.20" (63 x 5mm)	Leads	1201.07

*Output Protection for open secondary

**Phase shift indicated at maximum rating

Note: Models MN103, MN106, MN114 & MN185 are not CE compliant. MN200 & MN300 series are UL approved except MN379.

Consult factory for NIST Calibration price.

CURRENT MEASUREMENT PROBES

GENERAL PURPOSE PROBES SELECTION CHART

SERIES	MODEL	RATIO	MEASUREMENT RANGE		OUTPUT SIGNAL		PHASE SHIFT**	MAXIMUM CONDUCTOR SIZE		OUTPUT CONNECTION	CATALOG NO.
			AC	DC	CURRENT	VOLTAGE		Ø CABLE	BUS BAR		
	MR415	—	0.5 to 400A	0.5 to 600A	—	1mV/A	≤1.5°	1.18" (30mm)	2 bus bar 1.24 x 0.39" (31.5 x 10mm)	5 ft (1.5m) Lead	1200.80
	MR416	—	0.5 to 40A 0.5 to 400A	0.5 to 60A 0.5 to 600A	—	10mV/A 1mV/A	≤2.2° ≤1.5°	1.53" (39mm)	2 bus bar 1.95 x 0.19" (50 x 5mm)	5 ft (1.5m) Lead	1200.81
	MR526	—	0.5 to 100A 0.5 to 1000A	0.5 to 150A 0.5 to 1400A	—	10mV/A 1mV/A	≤2° ≤1.5°	1.53" (39mm)	2 bus bar 1.95 x 0.19" (50 x 5mm)	5 ft (1.5m) Lead	1200.83
	SR601	1000:1	0.1 to 1200A	—	1mA/A*	—	<0.5°	2.05" (52mm)	1.95 x 0.19" (50 x 5mm)	Jacks	2113.43
	SR604	1000:1	0.1 to 1200A	—	1mA/A*	—	<0.5°	2.05" (52mm)	1.95 x 0.19" (50 x 5mm)	Leads	2113.44
	SR651	—	0.1 to 1200A	—	—	1mV/A	<0.5°	2.05" (52mm)	1.95 x 0.19" (50 x 5mm)	Jacks	2113.45
	SR701	1000:1	1mA to 1000A	—	1mA/A*	—	<0.7°	2.05" (52mm)	1.95 x 0.19" (50 x 5mm)	Jacks	2116.29
	SR704	1000:1	1mA to 1000A	—	1mA/A*	—	<0.7°	2.05" (52mm)	1.95 x 0.19" (50 x 5mm)	Leads	2116.30
	SR752	—	0.1 to 1000A	—	—	1mV/A	<0.7°	2.05" (52mm)	1.95 x 0.19" (50 x 5mm)	Leads	2116.32
	SR759	—	1mA to 1A 10mA to 10A 0.1 to 100A 1 to 1000A	—	—	1000mV/A 100mV/A 10mV/A 1mV/A	<1°	2.05" (52mm)	1.95 x 0.19" (50 x 5mm)	Leads	2116.33
	K100	—	0.1mA to 3A	0.05mA to ±4A	—	1mV/mA	N/A	0.18" (4.5 mm)	N/A	Plugs	1200.67
	K110	—	0.1mA to 300mA	0.05mA to ±450mA	—	10mV/mA	N/A		N/A	Plugs	2111.73
	LM102	1000:1	50mA to 200A	—	1mA/A*	—	<3°	0.63" (16 mm)	N/A	Leads	2153.04
	LM103	—	0.1 to 200A	—	—	1mV/A	<3°		N/A	Leads	2153.05

*Output Protection for open secondary

**Phase shift indicated at maximum rating

Note: All SR probes listed on this chart are UL approved, however not all SR series probes are UL approved; please consult factory.

Consult factory for NIST Calibration price.



OUTPUT TERMINATIONS

Lead with BNC

Insulated 6.5 ft (2m) coaxial cable with insulated BNC connector rated 600Vrms



Jacks

Two standard safety banana jacks (4mm)



Leads

Double/reinforced 5 ft (1.5m) leads with 4mm safety banana plug



Shrouded Banana Plugs

Two 4mm safety banana plugs; standard ¾" (19mm) spacing



AMPFLEX® AND MINIFLEX® PROBES - SELECTION CHARTS

SERIES	MODEL	RATIO	MEASUREMENT RANGE	OUTPUT SIGNAL	MAXIMUM CONDUCTOR SIZE	CATALOG NO.
	MF 300-10-2-10-HF	—	30A / 300A	100mV/A, 10mV/A	2.95" (70mm)	2126.84
	MA114	—	3A / 30A / 300A / 3000A	1mV/mA, 100mV/A 10mV/A, 1mV/A	4" (101mm)	2153.41
	300-24-2-10	—	30A / 300A	100mV/A, 10mV/A	7.48" (190mm)	2112.88
	1000-24-1-1	—	1000A	1mV/A	7.48" (190mm)	2112.39
	1000-24-2-1	—	100A / 1000A	10mV/A, 1mV/A	7.48" (190mm)	2112.98
	1000-36-2-1	—	100A / 1000A	10mV/A, 1mV/A	11" (290mm)	2113.00
	3000-24-1-1	—	3000A	1mV/A	7.48" (190mm)	2112.46
	3000-36-1-1	—			11" (290mm)	2112.48
	3000-24-2-1	—	300A / 3000A	10mV/A, 1mV/A	7.48" (190mm)	2113.05
	6000-36-2-0.1	—	600A / 6000A	1mV/A, 0.1mV/A	11" (290mm)	2113.21
	30000-24-2-0.1	—	3000A / 30,000A		7.48" (190mm)	2113.33
	24-3001	—	300A / 3000A _{AC}	10mV/A, 1mV/A	7.48" (190mm)	2120.81

Consult factory for NIST Calibration price

OSCILLOSCOPE & BNC TERMINATED PROBES

MODEL	MEASUREMENT RANGE		OUTPUT SIGNAL VOLTAGE	PHASE SHIFT*	MAXIMUM CONDUCTOR SIZE		OUTPUT CONNECTION
	AC	DC			Ø CABLE	BUS BAR	
SL261  c UL US	100mA to 10A 1 to 100A		100mV/A 10mV/A	<1.5°	0.46" (11.8mm)	N/A	6.5 ft (2m) Lead w/BNC
MN261  c UL US	0.1 to 24A 0.5 to 240A	—		<2.5°	0.78" (19.8mm)		
SR661  c UL US	0.1 to 12A 0.1 to 120A 1 to 1200A		100mV/A 10mV/A 1mV/A	<1°	2.05" (52mm)	1.96 x 0.19" (50 x 5mm)	
MN251T MN379T 	0.5 to 240A		1mV/A	<2.5°	0.78" (20mm)	0.78" (20mm)	10 ft (3m) Lead w/BNC
	0.005 to 6A		200mV/A	<4°			
	0.1 to 120A	10mV/A	<2.2°				
MH60 	0.5 to 100A	0.5 to 100A	10mV/A	<1°	1.02" (26mm)	N/A	6.6 ft (2m) Lead w/BNC
MR417 	0.5 to 40A 0.5 to 400A	0.5 to 60A 0.5 to 600A	10mV/A 1mV/A	≤2.2° ≤1.5°	1.18" (30mm)	2 bus bar 1.24 x 0.39" (31.5 x 10mm)	
MR527 	0.5 to 100A 0.5 to 1000A	0.5 to 150A 0.5 to 1400A		≤2.2° ≤1.5°	1.53" (39mm)	2 bus bar 1.96 x 0.19" (50 x 5mm)	

*Phase shift indicated at maximum rating. Note: All probes are rated 600V CAT III and CE compliant. Not all models are UL approved; please consult factory. Consult factory for NIST Calibration price.